

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 785 578 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
22.04.1998 Bulletin 1998/17

(51) Int Cl.⁶: **H01L 51/20, H01L 51/30,
H01L 27/12**

(43) Date of publication A2:
23.07.1997 Bulletin 1997/30

(21) Application number: **97300063.1**

(22) Date of filing: **07.01.1997**

(84) Designated Contracting States:
DE FR GB

(30) Priority: **16.01.1996 US 587426**

(71) Applicant: **AT&T Corp.**
New York, NY 10013-2412 (US)

(72) Inventors:
• **Baumbach, Joerg**
New Providence, New Jersey 07974 (US)

• **Katz, Howard Edan**
Summit, New Jersey 07901 (US)
• **Dodabalapur, Ananth**
Millington, New Jersey 07946 (US)

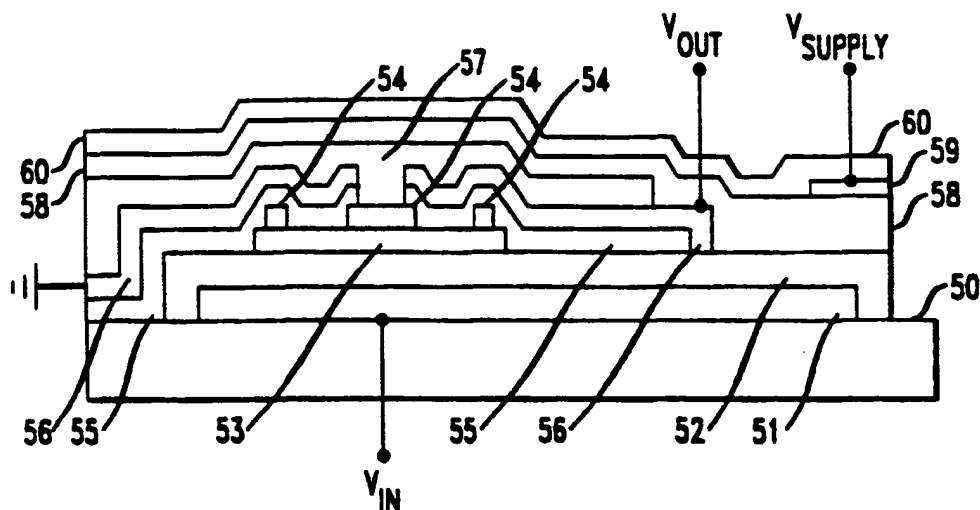
(74) Representative:
Watts, Christopher Malcolm Kelway, Dr. et al
Lucent Technologies (UK) Ltd,
5 Mornington Road
Woodford Green Essex, IG8 0TU (GB)

(54) **Circuit comprising complementary thin film transistors**

(57) In preferred embodiments of the invention, the n-channel inorganic TFTs have an amorphous Si active layer (53), and the p-channel organic TFTs have α -hex-athienylene (α -6T) active layer (58). Complementary

inverters according to the invention are disclosed, as is an exemplary processing sequence that can be used to manufacture integrated complementary inverters and other complementary circuits according to the invention.

FIG. 9



EP 0 785 578 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 30 0063

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.8)
P, X	DODABALAPUR A ET AL: "Hybrid organic/inorganic complementary circuits" APPLIED PHYSICS LETTERS, 15 APRIL 1996, AIP, USA, vol. 68, no. 16, ISSN 0003-6951, pages 2246-2248, XP002055715 * the whole document *	1,2,4-6	H01L51/20 H01L51/30 H01L27/12
E	US 5 612 228 A (SHIEH CHAN-LONG ET AL) * column 2, line 3 - column 2, line 30; claims 1-18; figures 5,6 *	1,2,4-6	
A	PATENT ABSTRACTS OF JAPAN vol. 014, no. 016 (E-872), 12 January 1989 & JP 01 259563 A (MITSUBISHI ELECTRIC CORP), 17 October 1989, * abstract *	1,2,4	
D, A	DODABALAPUR A ET AL: "ORGANIC HETEROSTRUCTURE FIELD-EFFECT TRANSISTORS" SCIENCE, vol. 269, 15 September 1995, pages 1560-1562, XP000644688		
			TECHNICAL FIELDS SEARCHED (Int.Cl.8)
			H01L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16 February 1998	Examiner Königstein, C
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EP 0 785 578 A3 (P4001)